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Case Report

Acral Metastasis to the Hand as the Primary Presentation of Malignancy

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Metastatic hand tumors are uncommon but important to include in the differential diagnosis for hand masses. In this study, we report the case of a patient presenting initially with hand pain and swelling with no other pertinent medical history except for an extensive smoking history. Subsequent mass biopsy and work-up revealed metastatic lung cancer. Acral metastases to the hand as the first manifestation of a primary tumor are a rare but debilitating condition with a poor prognosis. Hand surgeons must remain aware of the potential for metastatic hand tumors in patients without known malignancy and advocate for the prompt initiation of multidisciplinary care and treatment to maximize patient outcomes.

Acral metastases to the hand are uncommon but may represent the initial presentation of undiagnosed cancer. Hand metastases account for 0.1% of osseous metastases, and most of these rare cases result from a known malignancy.[1–6] The purpose of this report was to present a rare but devastating presentation of metastatic lung cancer to remind hand surgeons to remain vigilant when evaluating new hand lesions and consider malignancy in the differential.

The patient passed away prior to being informed that the case would be submitted for publication, and therefore, written consent was not possible. No protected health information that could reasonably be used to identify the patient is presented in this report.

Case Report

A 66-year-old right hand–dominant woman presented to the hand surgery outpatient clinic with left hand pain and swelling. She had sustained a mechanical fall several months prior, and left hand and wrist radiographs obtained at that time were unremarkable. Prior treatment included an antibiotic course prescribed by another physician prior to presentation. She had no pertinent medical history, but the patient admitted to an active smoking history. Surgical history was pertinent only for hysterectomy.

Physical examination revealed diffuse swelling, erythema, and tenderness to palpation over the dorsum of her left hand. She also presented with a small scab over the volar surface of the palm with associated surrounding erythema. The patient noted altered diffuse sensation throughout the palm and fingers without vascular compromise. Examination did not reveal any other areas of bony crepitus or tenderness to palpation.

Repeat radiographs performed upon presentation showed a lytic lesion involving her long and ring finger metacarpals (Fig. 1). Magnetic resonance imaging with gadolinium confirmed a 4.3 cm × 2.8 cm × 5.4 cm mid-palm soft tissue mass with central necrosis and associated bony destruction (Fig. 2).

The decision was made to proceed urgently with a surgical biopsy of the lesion. Pathology confirmed poorly differentiated carcinoma (Figs. 3, 4). The patient was subsequently referred to oncology, and further work-up included a chest computed tomography revealing a large 8.5 cm × 5.0 cm × 8.5 cm central and right-sided superior mediastinal mass, as well as multiple right upper lobe-spiculated nodules suspicious for pulmonary malignancy (Fig. 5). Further treatment was unsuccessful, and the patient died approximately 2 months after her initial presentation to the clinic.

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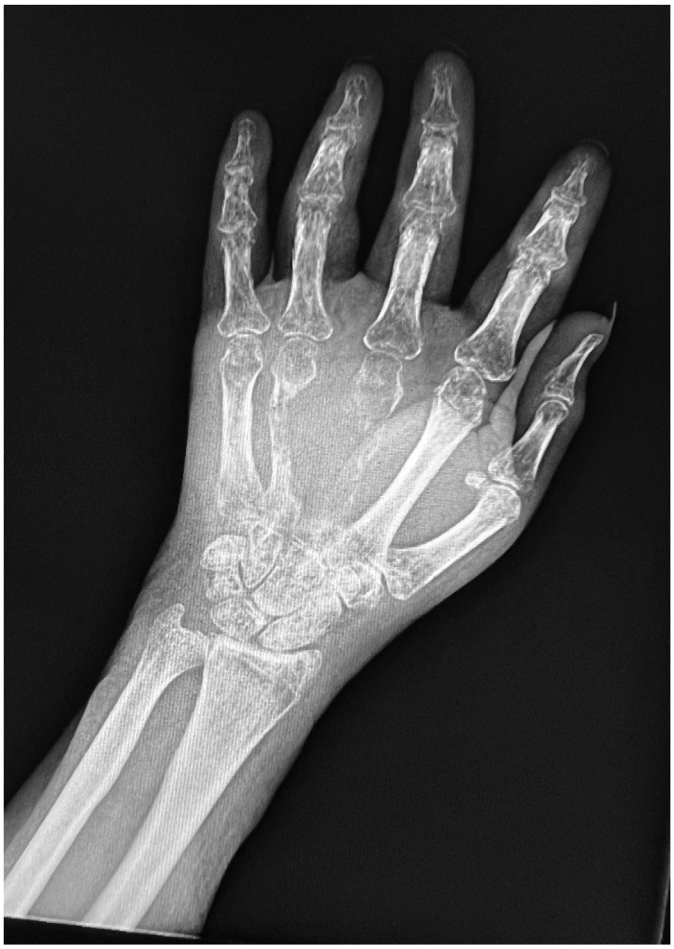

Figure 1. Posteroanterior radiograph of the left hand showing extensive bony destruction of the middle and ring finger metacarpals.

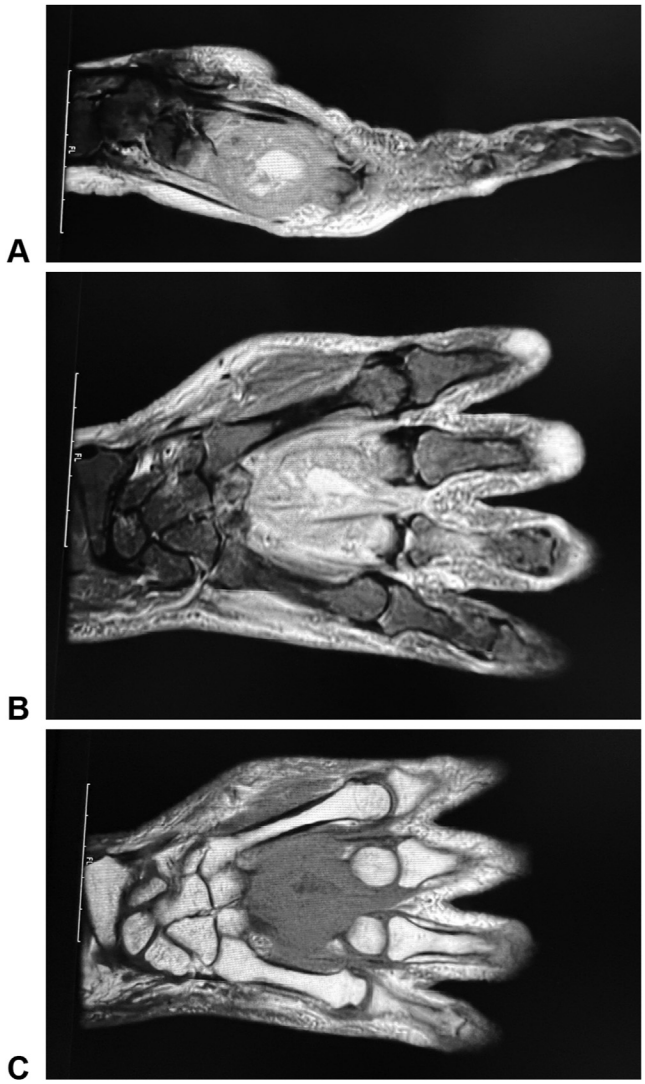

Figure 2. Magnetic resonance imaging with contrast of the left hand, including **A** T2-weighted coronal, **B** T2-weighted sagittal, and **C** T1-weighted coronal, showing a mass of the mid-palm with extensive bony destruction.

Discussion

Acral metastases to the hand are rare, but prompt diagnosis can prevent unnecessary delays in treatment and the associated clinical consequences to the patient.[7] In this study, we present the case of one such patient with metastatic pulmonary malignancy presenting as a painful left hand mass in an otherwise healthy, asymptomatic patient with an active smoking history. Unfortunately, like our patient who was treated with antibiotics prior to presenting to the orthopedic clinic, previous reports have indicated that about 11% of patients with hand metastases initially receive treatment for inflammatory conditions.[3]

The prognosis for patients with metastases to the hand and wrist is often poor, with a median survival of 4–12 months and a reported mean age at diagnosis of 61 years old.[2,6] Treatment options are limited and can include palliative radiation, chemotherapy, and amputation depending on the overall prognosis of the underlying primary disease.[6,7] The diagnosis of metastases to the hand and wrist often begins with unexplained pain that necessitates further imaging studies such as radiographs, computed tomography, or magnetic resonance imaging. Most commonly, radiographs show lytic lesions, but blastic or mixed lesions can also occur.[8,9] The most common digit for acrometastases in the hand is the thumb, and the most common site is the distal phalanx.[6] Without a confirmed primary tumor, a biopsy is often needed to confirm the diagnosis and help determine the primary tumor site with the most common primary malignancy being lung, followed by renal and breast cancers.[10–13]

Acral metastases to the hand as the first presentation of a primary tumor are a rare and debilitating complication with a poor prognosis. Early diagnosis and treatment are critical to improving functional outcomes and survival. A history of previous cancer or a history of risk factors, such as extensive smoking history, should raise the index of suspicion for malignancy. Hand surgeons must remain aware of the potential for metastatic disease to the hand and advocate for the prompt initiation of multidisciplinary care and treatment to maximize patient outcomes.

Conflicts of Interest

No benefits in any form have been received or will be received related directly to this article.

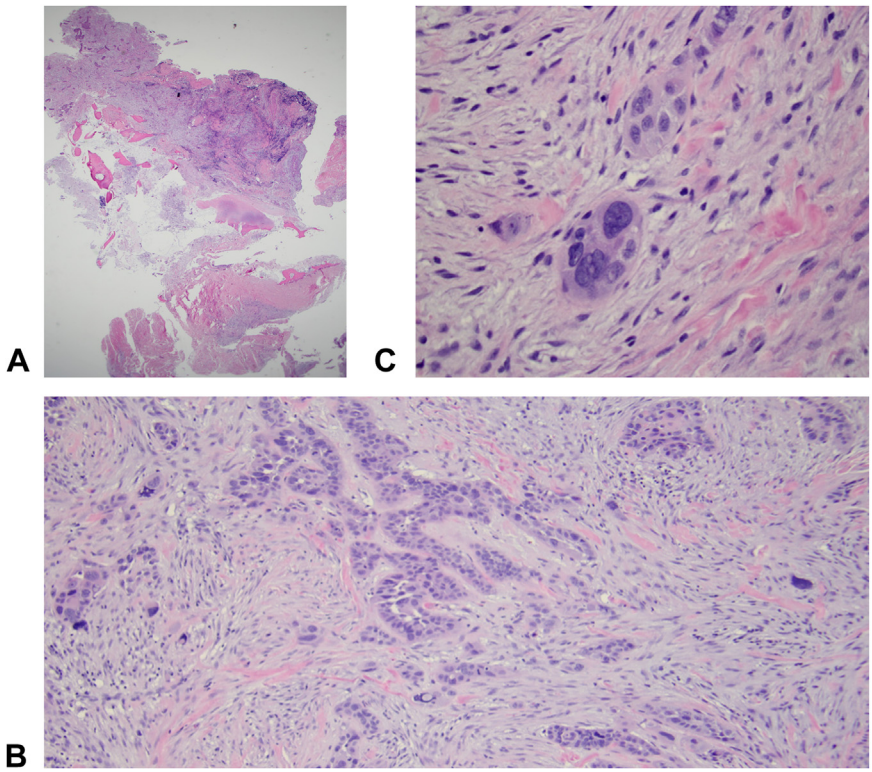

Figure 3. Pathologic specimens of the left hand mass images demonstrating **A** fragments of soft tissue admixed with bone and cartilage consistent with poorly differentiated carcinoma (Hematoxylin-eosin stain; magnification ×2,) **B** infiltrative malignant cells arranged in nests, glands, and single cells (Hematoxylin-eosin stain; magnification ×4,) and **C** marked nuclear atypia and fibrous background (Hematoxylin-eosin stain; magnification ×40).

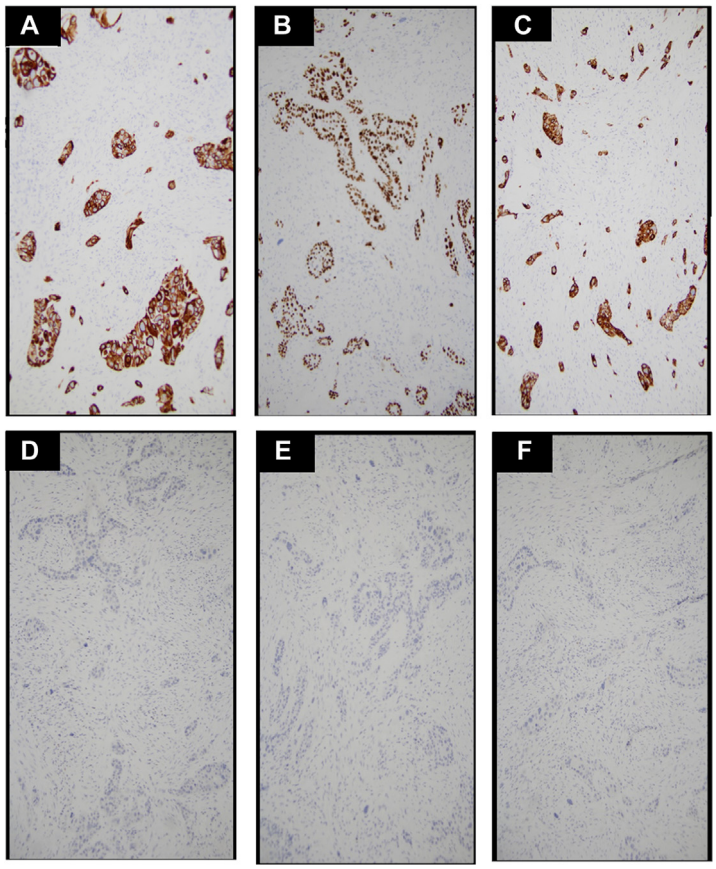

Figure 4. Pathologic specimens from the left hand mass demonstrating **A** pan-cytokeratin diffuse positive, **B** p40 diffuse positive, **C** CK7 diffuse positive, **D** TTF-1 negative, **E** Mela-A negative, and **F** GATA-3 negative (Immunohistochemical stain; magnification ×10).

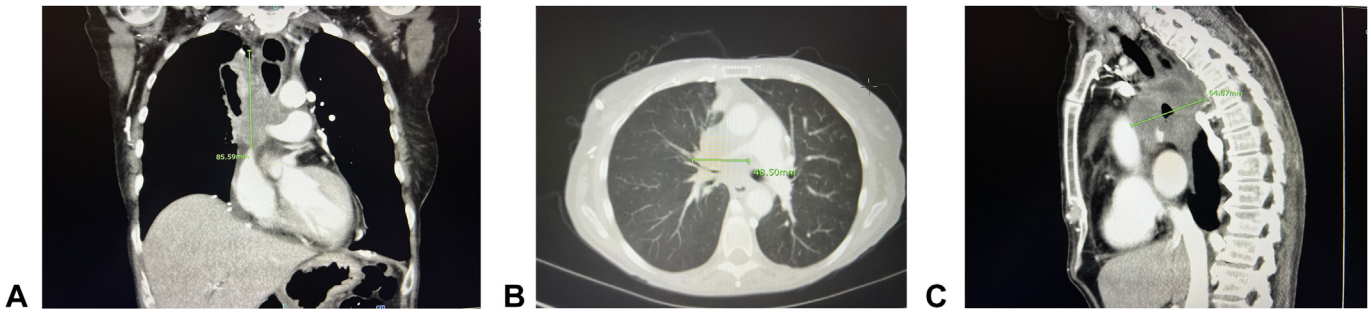

Figure 5. Computed tomography images, including **A** coronal, **B** axial, and **C** sagittal, of the chest showing a mediastinal mass consistent with pulmonary malignancy.

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